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Claims

1.   A configurable protocol engine (CPE) for configuring and constructing a communication protocol comprising

   -means for receiving service primitives (310, 318),

5   -means for receiving configuration information (320,308),

   -means for managing the CPE configuration on the basis of the configuration information (308),

   -means for controlling and scheduling at least part of internal processing in the CPE on the basis of the CPE configuration (306),

10   -means for interfacing an upper and lower protocol layer on the basis of the CPE configuration (310, 318, 322), and

   -a number of functions for processing data in accordance with the CPE configuration (314).

2.   The configurable protocol engine of claim 1, arranged to select said number of
15   functions on the basis of the CPE configuration from a plurality of functions, said plurality of functions comprising an equal or larger number of functions than said number of functions.

3.   The configurable protocol engine of claim 1, arranged to receive and process the configuration information during the CPE start-up or at run-time.

20   4.   The configurable protocol engine of claim 1, arranged to construct said CPE configuration on the basis of at least one of the following: service requirements, required QoS (Quality of Service), hardware resources, and network resources.

5.   The configurable protocol engine of claim 1, arranged to configure said means for interfacing an upper and lower protocol layer on the basis of received configuration
25   information.

6.   The configurable protocol engine of claim 1, arranged to receive one or more functions from an external entity to be included in said number of functions.

7.   The configurable protocol engine of claim 1 or 2, arranged to select a function to said number of functions on the basis of the service level provided by the function or of at least one cost factor related to said function.

8.   The configurable protocol engine of claim 1, arranged to apply scheduling to the received service primitives.

9.   The configurable protocol engine of claim 1-8, arranged to perform scheduling by maintaining a number of queues for the service primitives, said queues served on the basis of their priority, and said primitives placed into the queues on the basis of their priority.

10. The configurable protocol engine of claim 1, wherein the received configuration information explicitly defines the CPE configuration.

11. The configurable protocol engine of claim 1, wherein the received configuration information is a source for constructing the CPE configuration.

12. The configurable protocol engine of claim 1 that is software, hardware, or a combination of both.

13. A method for configuring a configurable protocol engine (CPE) in order to construct a communication protocol, said method having the steps of

-receiving configuration information (1204),

-defining the CPE configuration on the basis of said configuration information (1216), and

-adapting the CPE to the defined CPE configuration (1218), whereby at least one action is performed, said action selected from the group of: an interface towards an external entity is implemented (1224), a queue for a service primitive is implemented (1226), and a function to be used for processing data included in a service primitive is determined (1228).

14. The method of claim 13, wherein the CPE configuration is defined on the basis of at least one of the following: service requirements, required QoS (Quality of Service), hardware resources, and network resources.

15. The method of claim 13, wherein after configuring the CPE the received service primitives are scheduled on the basis of their priority classification by placing a

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received service primitive or a derivative thereof into a queue with corresponding priority classification, and by serving said queue according to the priority classification thereof.

16. The method of claim 13, wherein the function is determined by selecting the
5 function from a plurality of functions on the basis of the CPE configuration, or by receiving the function or an indication thereof from an external entity.

17. A computer program for implementing at least part of a configurable protocol engine (CPE) for constructing a protocol, said computer program comprising code means

10 to define and manage the CPE configuration on the basis of available configuration information,

to schedule processing of received service primitives on the basis of the CPE configuration, and

to provide a number of functions for processing data included in the service primitives
15 in accordance with the CPE configuration.

18. The computer program of claim 17, wherein said code means to schedule are configured to maintain a number of queues for the service primitives or derivatives thereof, said code means to schedule further configured to serve the primitives or derivatives thereof on the basis of their priority, said primitives placed into the queues
20 on the basis of their priority.

19. A carrier medium carrying the computer executable program of claim 17.

20. An electronic device for implementing a configurable protocol engine (CPE) capable of receiving and processing service primitives, said device comprising processing (1302, 1318) and memory means (1304) for processing and storing
25 instructions and data, and data transfer means (1308) for transferring data, said device arranged to receive configuration information, to manage the CPE configuration on the basis of the configuration information, to schedule at least part of the internal processing within the CPE on the basis of the CPE configuration, and to process received service primitives in accordance with the CPE configuration.

30 21. The electronic device of claim 20, further arranged to interface an upper and lower protocol layer on the basis of the CPE configuration.

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22. The electronic device of claim 20, further arranged to select a number of functions from a plurality of functions in accordance with the CPE configuration in order to implement a protocol.

23. The electronic device of claim 20, further arranged to perform the scheduling by
5 maintaining a number of queues with different priorities for the service primitives or derivatives thereof, and by serving the primitives or derivatives thereof on the basis of their priority, said primitives placed into the queues on the basis of their priority.

24. The electronic device of claim 23, arranged to utilize separate queues for each primitive type.

10 25. The electronic device of claim 20-24, further arranged to place a primitive retrieved from a queue back to the queue if the function required by the primitive is already in use.

26. The electronic device of claim 20 that is substantially a wireless communication device or a computer.